Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

1	1 (Currently Amended). A network connection system for connecting a first
2	communication network and a plurality of user terminals when a second
3	communication network is interposed between said first communication
4	network and said plurality of user terminals, said second communication
5	network employing a second protocol different from a first protocol employed
6	in said first communication network, said system comprising:
7	a scheduling apparatus including:
8	an overhead amount correction unit <u>receiving rate information</u>
9	<u>which represents a current rate set between the second communication</u>
10	<u>system and said plurality of user terminals</u> for correcting an overhead
11	amount between data conforming to said second protocol and data
12	conforming to said first protocol to convert received information on a
13	rate based on said second protocol to a rate based on said first
14	protocol; and
15	a scheduler for shaping a transmission rate for the data
16	conforming to said first protocol from said first communication
17	network such that the data conforming to said first protocol is
18	delivered at a transmission rate equal to or lower than said rate
19	calculated by said overhead amount correction unit;
20	a protocol converter for converting data conforming to said first
21	protocol after said scheduling apparatus has shaped the transmission rate
22	therefor to data conforming to said second protocol for use in said second
23	network; and
24	a multiplexer including a current data <u>rate</u> detector for supplying said
25	scheduling apparatus with said rate information as indicative of a currently set

26   reception rate for said user terminals, said multiplexer being configured to

27   transmit to each of said user terminals the data conforming to said second

28   protocol from said protocol converter or the data conforming to said first

29   protocol after said scheduling apparatus has shaped the transmission rate

30   therefor.

1   2 (Original). A network connection system for connecting a first

2   communication network and a plurality of user terminals when a second

3   communication network is interposed between said first communication

4   network and said plurality of user terminals, said second communication

5   network employing a second protocol different from a first protocol employed

6   in said first communication network, said system comprising:

7   a scheduling apparatus including:

8   a classification processing unit for classifying data conforming

9   to said first protocol received from said communication network based

10   on quality guaranteed classes set thereto;

11   an overhead amount correction unit for correcting an overhead

12   amount between a data rate associated with said first protocol and a

13   data rate associated with said second protocol to convert received rate

14   information on said second protocol to the rate based on said first

15   protocol;

16   a weighting coefficient calculation unit for calculating a

17   weighting coefficient based on said rate calculated by said overhead

18   amount correction unit such that a minimally guaranteed rate is assured

19   for a minimum rate guaranteed class among classes classified by said

20   classification processing unit;

21   a weighting scheduler for scheduling data conforming to said

22   first protocol of said minimum rate guaranteed class and of a

23   weighting applied class among said classified classes based on the

24   weighting coefficient calculated by said weighting coefficient

25   calculation unit to deliver the data in accordance with the scheduling;

26   and

27   a scheduler for scheduling the data conforming to said first

28   protocol from said weighting scheduler such that the data conforming

29   to said first protocol is delivered at a transmission rate equal to or

30   lower than said rate calculated by said overhead amount correction unit

31   to deliver the data in accordance with the scheduling;

32   a protocol converter for converting the data conforming to said first

33   protocol after said scheduling apparatus has shaped the transmission rate

34   therefor to data conforming to said second protocol; and

35   a multiplexer including a current data detector for supplying said

36   scheduling apparatus with said rate information as indicative of a currently set

37   reception rate for said user terminals, said multiplexer being configured to

38   transmit to each of said user terminals the data conforming to said second

39   protocol from said protocol converter or the data conforming to said first

40   protocol after said scheduling apparatus has shaped the transmission rate

41   therefor.

1   3 (Original). A network connection system for connecting a first

2   communication network and a plurality of user terminals when a second

3   communication network is interposed between said first communication

4   network and said plurality of user terminals, said second communication

5   network employing a second protocol different from a first protocol employed

6   in said first communication network, said system comprising:

7   a scheduling apparatus including:

8   a classification processing unit for classifying data conforming

9   to said first protocol received from said communication network based

10   on quality guaranteed classes set thereto;

11	an overhead amount correction unit for correcting an overhead
12	amount between a data rate associated with said first protocol and a
13	data rate associated with said second protocol to convert received rate
14	information on said second protocol to the rate based on said first
15	protocol;
16	a weighting coefficient calculation unit for calculating a
17	weighting coefficient based on said rate calculated by said overhead
18	amount correction unit such that a minimally guaranteed rate is assured
19	for the minimum rate guaranteed class among classes classified by said
20	classification processing unit;
21	a weighting scheduler for scheduling data conforming to said
22	first protocol of said minimum rate guaranteed class and of a
23	weighting applied class among said classified classes based on the
24	weighting coefficient calculated by said weighting coefficient
25	calculation unit to deliver the data in accordance with the scheduling;
26	and
27	a preferential control scheduler for scheduling the data
28	conforming to said first protocol from said weighting scheduler, and
29	data conforming to said first protocol of a best-effort class among said
30	classified classes such that the data conforming to said first protocol is
31	delivered at a transmission rate equal to or lower than said rate
32	calculated by said overhead amount correction unit, and for
33	preferentially scheduling the data conforming to said first protocol
34	from said weighting scheduler, and delivering the data conforming to
35	said first protocol of the best-effort class at a timing at which there is
36	no data conforming to said first protocol from said weighting
37	scheduler;
38	a protocol converter for converting the data conforming to said first
39	protocol after said scheduling apparatus has shaped the transmission rate

40	therefor to data conforming to said second protocol; and
41	a multiplexer including a current data detector for supplying said
42	scheduling apparatus with said rate information as indicative of a currently set
43	reception rate for said user terminals, said multiplexer being configured to
44	transmit to each of said user terminals the data conforming to said second
45	protocol from said protocol converter or the data conforming to said first
46	protocol after said scheduling apparatus has shaped the transmission rate
47	therefor.

1	4 (Original). A network connection system for connecting a first
2	communication network and a plurality of user terminals when a second
3	communication network is interposed between said first communication
4	network and said plurality of user terminals, said second communication
5	network employing a second protocol different from a first protocol employed
6	in said first communication network, said system comprising:
7	a scheduling apparatus including:
8	a classification processing unit for classifying data conforming
9	to said first protocol received from said communication network based
10	on quality guaranteed classes set thereto;
11	a rate measuring unit for measuring a transmission rate for a
12	preferential class among said classified classes;
13	an overhead amount correction unit for correcting an overhead
14	amount between a rate based on said second protocol and a rate based
15	on said first protocol to convert received rate information on said
16	second protocol to the rate based on said first protocol;
17	a weighting coefficient calculation unit for calculating a
18	weighting coefficient based on said rate calculated by said overhead
19	amount correction unit and the transmission rate for the preferential
20	class measured by said rate measuring unit such that a minimally

21   guaranteed rate is assured for the minimum rate guaranteed class

22   among the classes classified by said classification processing unit;

23   a weighting scheduler for scheduling data conforming to said

24   first protocol of said minimum rate guaranteed class and of a

25   weighting applied class among said classified classes based on the

26   weighting coefficient calculated by said weighting coefficient

27   calculation unit to deliver the data in accordance with the scheduling;

28   and

29   a preferential control scheduler for scheduling the data

30   conforming to said first protocol of said preferential class, the data

31   conforming to said first protocol from said weighting scheduler, and

32   data conforming to said first protocol of a best-effort class among said

33   classified classes such that the data conforming to said first protocol is

34   delivered at a transmission rate equal to or lower than said rate

35   calculated by said overhead amount correction unit, and for

36   preferentially scheduling the data conforming to said first protocol of

37   said preferential class, preferentially scheduling the data conforming to

38   said first protocol from said weighting scheduler at a timing at which

39   there is no data conforming to said first protocol of said preferential

40   class, and delivering the data conforming to said first protocol of the

41   best-effort class at a timing at which there is no data conforming to

42   said first protocol from said weighting scheduler;

43   a protocol converter for converting the data conforming to said first

44   protocol after said scheduling apparatus has shaped the transmission rate

45   therefor to data conforming to said second protocol; and

46   a multiplexer including a current data detector for supplying said

47   scheduling apparatus with said rate information as indicative of a currently set

48   reception rate for said user terminals, said multiplexer being configured to

49   transmit to each of said user terminals the data conforming to said second

50	protocol from said protocol converter or the data conforming to said first
51	protocol after said scheduling apparatus has shaped the transmission rate
52	therefor.

1	5 (Original). A network connection system for connecting a first
2	communication network and a plurality of user terminals when a second
3	communication network is interposed between said first communication
4	network and said plurality of user terminals, said second communication
5	network employing a second protocol different from a first protocol employed
6	in said first communication network, said system comprising:
7	a scheduling apparatus including:
8	a classification processing unit for classifying data conforming
9	to said first protocol received from said communication network based
10	on quality guaranteed classes set thereto;
11	a rate measuring unit for measuring a transmission rate for a
12	preferential class among said classified classes;
13	an overhead amount correction unit for correcting an overhead
14	amount between a rate based on said second protocol and a rate based
15	on said first protocol to convert received rate information on said
16	second protocol to the rate based on said first protocol;
17	a preferential class upper limit setting unit, operative when the
18	difference between the transmission rate of the data conforming to said
19	first protocol of the preferential class as measured by said rate
20	measuring unit and said rate calculated by said overhead amount
21	correction unit is lower than a minimally guaranteed rate for a
22	minimum rate guaranteed class among the classes classified by said
23	classification processing unit, for setting an upper limit to the
24	transmission rate for said preferential class for shaping, such that the
25	minimally guaranteed rate can be assured for said minimum rate

26   guaranteed class;

27   a weighting coefficient calculation unit, operative when said

28   preferential class upper limit setting unit does not set the upper limit,

29   for calculating a weighting coefficient based on said rate calculated by

30   said overhead amount correction unit and the transmission rate for the

31   preferential class measured by said rate measuring unit such that the

32   minimally guaranteed rate is assured for the minimum rate guaranteed

33   class among the classes classified by said classification processing

34   unit, said weighting coefficient calculation unit being further operative

35   when said preferential class upper limit setting unit sets the upper

36   limit, for calculating a weighting coefficient based on said rate

37   calculated by said overhead amount correction unit and the upper limit

38   rate set by said preferential class upper limit setting unit such that the

39   minimally guaranteed rate is assured for said minimum rate guaranteed

40   class;

41   a weighting scheduler for scheduling data conforming to said

42   first protocol of said minimum rate guaranteed class and of a

43   weighting applied class among said classified classes based on the

44   weighting coefficient calculated by said weighting coefficient

45   calculation unit to deliver the data in accordance with the scheduling;

46   and

47   a preferential control scheduler for scheduling the data

48   conforming to said first protocol of said preferential class, the data

49   conforming to said first protocol from said weighting scheduler, and

50   data conforming to said first protocol of a best-effort class among said

51   classified classes, such that the data conforming to said first protocol is

52   delivered at a transmission rate equal to or lower than said rate

53   calculated by said overhead amount correction unit, and for

54   preferentially scheduling the data conforming to said first protocol of

55	said preferential class, preferentially scheduling the data conforming to
56	said first protocol from said weighting scheduler at a timing at which
57	there is no data conforming to said first protocol of said preferential
58	class, and delivering the data conforming to said first protocol of the
59	best-effort class at a timing at which there is no data conforming to
60	said first protocol from said weighting scheduler;
61	a protocol converter for converting the data conforming to said first
62	protocol after said scheduling apparatus has shaped the transmission rate
63	therefor to data conforming to said second protocol; and
64	a multiplexer including a current data detector for supplying said
65	scheduling apparatus with said rate information as indicative of a currently set
66	reception rate for said user terminals, said multiplexer being configured to
67	perform DSL processing using telephone lines to transmit to each of said user
68	terminals the data conforming to said second protocol from said protocol
69	converter or the data conforming to said first protocol after said scheduling
70	apparatus has shaped the transmission rate therefor.
1	6 (Original). A network connection system for connecting a first
2	communication network and a plurality of user terminals when a second
3	communication network is interposed between said first communication
4	network and said plurality of user terminals, said second communication
5	network employing a second protocol different from a first protocol employed
6	in said first communication network, said system comprising:
7	a scheduling apparatus including:
8	a classification processing unit for classifying data conforming
9	to said first protocol received from said communication network based
10	on quality guaranteed classes set thereto;
11	an overhead amount correction unit for correcting an overhead
12	amount between a rate based on said second protocol and a rate based

13	on said first protocol to convert received rate information on said
14	second protocol to the rate based on said first protocol;
15	a weighting coefficient calculation unit for calculating a
16	weighting coefficient based on said rate calculated by said overhead
17	amount correction unit and the transmission rate for a preferential class
18	among said classified classes using information fed back from said
19	user terminals such that a minimally guaranteed rate is assured for the
20	minimum rate guaranteed class among the classes classified by said
21	classification processing unit;
22	a weighting scheduler for scheduling data conforming to said
23	first protocol of said minimum rate guaranteed class and of a
24	weighting applied class among said classified classes based on the
25	weighting coefficient calculated by said weighting coefficient
26	calculation unit to deliver the data in accordance with the scheduling;
27	and
28	a preferential control scheduler for scheduling the data
29	conforming to said first protocol of said preferential class, the data
30	conforming to said first protocol from said weighting scheduler, and
31	data conforming to said first protocol of a best-effort class among said
32	classified classes such that the data conforming to said first protocol is
33	delivered at a transmission rate equal to or lower than said rate
34	calculated by said overhead amount correction unit, and for
35	preferentially scheduling the data conforming to said first protocol of
36	said preferential class, preferentially scheduling the data conforming to
37	said first protocol from said weighting scheduler at a timing at which
38	there is no data conforming to said first protocol of said preferential
39	class, and delivering the data conforming to said first protocol of the
40	best-effort class at a timing at which there is no data conforming to
41	said first protocol from said weighting scheduler;

42	a protocol converter for converting the data conforming to said first
43	protocol after said scheduling apparatus has shaped the transmission rate
44	therefor to data conforming to said second protocol; and
45	a multiplexer including a current data detector for supplying said
46	scheduling apparatus with said rate information as indicative of a currently set
47	reception rate for said user terminals, said multiplexer being configured to
48	perform DSL processing using telephone lines to transmit to each of said user
49	terminals the data conforming to said second protocol from said protocol
50	converter or the data conforming to said first protocol after said scheduling
51	apparatus has shaped the transmission rate therefor.

1	7 (Original). A network connection system for connecting a first
2	communication network and a plurality of user terminals when a second
3	communication network is interposed between said first communication
4	network and said plurality of user terminals, said second communication
5	network employing a second protocol different from a first protocol employed
6	in said first communication network, said system comprising:
7	a scheduling apparatus including:
8	a classification processing unit for classifying data conforming
9	to said first protocol received from said communication network based
10	on quality guaranteed classes set thereto;
11	an overhead amount correction unit for correcting an overhead
12	amount between a rate based on said second protocol and a rate based
13	on said first protocol to convert received rate information on said
14	second protocol to the rate based on said first protocol;
15	a preferential class upper limit setting unit, operative when the
16	difference between the transmission rate for a preferential class among
17	said classified classes determined to be using information fed back
18	from said user terminals and said rate calculated by said overhead

19	amount correction unit is lower than a minimally guaranteed rate for a
20	minimum rate guaranteed class among the classes classified by said
21	classification processing unit, for setting an upper limit to the
22	transmission rate for said preferential class for shaping such that the
23	minimally guaranteed rate can be assured for said minimum rate
24	guaranteed class;
25	a weighting coefficient calculation unit, operative when said
26	preferential class upper limit setting unit does not set the upper limit,
27	for calculating a weighting coefficient based on said rate calculated by
28	said overhead amount correction unit and the transmission rate for the
29	preferential class such that the minimally guaranteed rate is assured for
30	said minimum rate guaranteed class, said weighting coefficient
31	calculation unit being further operative when said preferential class
32	upper limit setting unit sets the upper limit, for calculating a weighting
33	coefficient based on said rate calculated by said overhead amount
34	correction unit and the upper limit rate set by said preferential class
35	upper limit setting unit such that the minimally guaranteed rate is
36	assured for said minimum rate guaranteed class;
37	a weighting scheduler for scheduling data conforming to said
38	first protocol of said minimum rate guaranteed class and of a
39	weighting applied class among said classified classes based on the
40	weighting coefficient calculated by said weighting coefficient
41	calculation unit to deliver the data in accordance with the scheduling;
42	and
43	a preferential control scheduler for scheduling the data
44	conforming to said first protocol of said preferential class, the data
45	conforming to said first protocol from said weighting scheduler, and
46	data conforming to said first protocol of a best-effort class among said
47	classified classes such that the data conforming to said first protocol is

48	delivered at a transmission rate equal to or lower than said rate
49	calculated by said overhead amount correction unit, and for
50	preferentially scheduling the data conforming to said first protocol of
51	said preferential class, preferentially scheduling the data conforming to
52	said first protocol from said weighting scheduler at a timing at which
53	there is no data conforming to said first protocol of said preferential
54	class, and delivering the data conforming to said first protocol of the
55	best-effort class at a timing at which there is no data conforming to
56	said first protocol from said weighting scheduler;
57	a protocol converter for converting the data conforming to said first
58	protocol after said scheduling apparatus has shaped the transmission rate
59	therefor to data conforming to said second protocol; and
60	a multiplexer including a current data detector for supplying said
61	scheduling apparatus with said rate information as indicative of a currently set
62	reception rate for said user terminals, said multiplexer being configured to
63	perform DSL processing using telephone lines to transmit to each of said user
64	terminals the data conforming to said second protocol from said protocol
65	converter or the data conforming to said first protocol after said scheduling
66	apparatus has shaped the transmission rate therefor.

1	8 (Original). The network connection system according to claim 1, wherein
2	said current rate detector periodically applies the rate information to said
3	scheduling apparatus at regular time intervals.

1	9 (Original). The network connection system according to claim 1, wherein
2	said current rate detector applies the rate information to said scheduling
3	apparatus when the set rate based on said second protocol is updated.

1   10 (Original). The network connection system according to claim 1, wherein

2   said current rate detector supplies said scheduling apparatus with said rate

3   information as indicative of a transmission rate set between a user terminal

4   and said multiplexer in the event of hand-shaking.

1   11 (Original). The network connection system according to claim 1, wherein

2   said first communication network is an IP network, said data conforming to

3   said first protocol is an IP packet, said second network is an ATM network,

4   and said data conforming to said second protocol is an ATM cell.

1   12 (Original). A traffic shaping method, in a network connection system for

2   connecting a communication network and a plurality of user terminals, for

3   shaping a transmission rate for data conforming to a first protocol from said

4   communication network, said method comprising the steps of:

5   classifying data conforming to said first protocol received from said

6   communication network based on quality guaranteed classes set thereto;

7   correcting an overhead amount between a rate based on a second

8   protocol and a rate based on said first protocol to convert received rate

9   information on said second protocol to the rate based on said first protocol;

10   calculating a weighting coefficient such that a minimally guaranteed

11   rate is assured for a minimum rate guaranteed class among said classified

12   classes based on said calculated rate;

13   scheduling data conforming to said first protocol of said minimum rate

14   guaranteed class and of a weighting applied class among said classified classes

15   based on the calculated weighting coefficient to deliver the data in accordance

16   with the scheduling; and

17   scheduling the data conforming to said first protocol after said

18   weighting, and data conforming to said first protocol of a best-effort class

19   among said classified classes, such that the data conforming to said first

20   protocol is delivered at a transmission rate equal to or lower than said

21   calculated rate, and for preferentially scheduling the data conforming to said

22   first protocol after said weighting, so that the data conforming to said first

23   protocol of said best effort class is delivered at a timing at which there is no

24   data conforming to said first protocol after said weighting.

1   13 (Original). A traffic shaping method, in a network connection system for

2   connecting a communication network and a plurality of user terminals, for

3   shaping a transmission rate for data conforming to a first protocol from said

4   communication network, said method comprising the steps of:

5   classifying data conforming to said first protocol received from said

6   communication network based on quality guaranteed classes set thereto;

7   correcting an overhead amount between a rate based on a second

8   protocol and a rate based on said first protocol to convert received rate

9   information on said second protocol to the rate based on said first protocol;

10   calculating a weighting coefficient such that a minimally guaranteed

11   rate is assured for a minimum rate guaranteed class among said classified

12   classes based on said calculated rate;

13   scheduling data conforming to said first protocol of said minimum rate

14   guaranteed class and of a weighting applied class among said classified classes

15   based on the calculated weighting coefficient to deliver the data in accordance

16   with the scheduling; and

17   scheduling the data conforming to said first protocol after said

18   weighting, such that the data conforming to said first protocol is delivered at a

19   transmission rate equal to or lower than said calculated rate, to deliver the data

20   in accordance with the scheduling.

1   14 (Original). A traffic shaping method, in a network connection system for

2   connecting a communication network and a plurality of user terminals, for

3   shaping a transmission rate for data conforming to a first protocol from said

4   communication network, said method comprising the steps of:

5   classifying data conforming to said first protocol received from said

6   communication network based on quality guaranteed classes set thereto;

7   measuring a transmission rate for a preferential class among said

8   classified classes;

9   correcting an overhead amount between a rate based on a second

10   protocol and a rate based on said first protocol to convert received rate

11   information on said second protocol to the rate based on said first protocol;

12   calculating a weighting coefficient based on said calculated rate and

13   the transmission rate measured for the preferential class such that a minimally

14   guaranteed rate is assured for a minimum rate guaranteed class among the

15   classified classes;

16   scheduling data conforming to said first protocol of said minimum rate

17   guaranteed class and of a weighting applied class among said classified classes

18   based on the calculated weighting coefficient to deliver the data in accordance

19   with the scheduling; and

20   scheduling the data conforming to said first protocol of said

21   preferential class, the data conforming to said first protocol after said

22   weighting, and data conforming to said first protocol of a best-effort class

23   among said classified classes such that the data conforming to said first

24   protocol is delivered at a transmission rate equal to or lower than said

25   calculated rate, and for preferentially scheduling the data conforming to said

26   first protocol of said preferential class, preferentially scheduling the data

27   conforming to said first protocol after said weighting at a timing at which

28   there is no data conforming to said first protocol of said preferential class, and

29   delivering the data conforming to said first protocol of the best-effort class at a

30   timing at which there is no data conforming to said first protocol after said

31   weighting.

1   15 (Original). A traffic shaping method, in a network connection system for

2   connecting a communication network and a plurality of user terminals, for

3   shaping a transmission rate for data conforming to a first protocol from said

4   communication network, said method comprising the steps of:

5   classifying data conforming to said first protocol received from said

6   communication network based on quality guaranteed classes set thereto;

7   measuring a transmission rate for a preferential class among said

8   classified classes;

9   correcting an overhead amount between a rate based on said second

10   protocol and a rate based on said first protocol to convert received rate

11   information on said second protocol to the rate based on said first protocol;

12   when the difference between said measured transmission rate of the

13   data conforming to said first protocol of the preferential class and said

14   calculated rate is lower than a minimally guaranteed rate for a minimum rate

15   guaranteed class among said classified classes, setting an upper limit to the

16   transmission rate for said preferential class for shaping such that the minimally

17   guaranteed rate can be assured for said minimum rate guaranteed class;

18   calculating a weighting coefficient based on said calculated rate and

19   said transmission rate measured for the preferential class such that a minimally

20   guaranteed rate is assured for said minimum rate guaranteed class, when the

21   upper limit rate is not set for said preferential class, and calculating a

22   weighting coefficient based on said calculated rate and said set upper limit rate

23   such that the minimally guaranteed rate is assured for said minimum rate

24   guaranteed class when the upper limit rate is set for said preferential class;

25   scheduling data conforming to said first protocol of said minimum rate

26   guaranteed class and of a weighting applied class among said classified classes

27   based on said calculated weighting coefficient to deliver the data in

28   accordance with the scheduling; and

29   scheduling the data conforming to said first protocol of said

30	preferential class, the data conforming to said first protocol after said
31	weighting, and data conforming to said first protocol of a best-effort class
32	among said classified classes such that the data conforming to said first
33	protocol is delivered at a transmission rate equal to or lower than said
34	calculated rate, preferentially scheduling the data conforming to said first
35	protocol of said preferential class, preferentially scheduling the data
36	conforming to said first protocol after said weighting at a timing at which
37	there is no data conforming to said first protocol of said preferential class, and
38	delivering the data conforming to said first protocol of the best-effort class at a
39	timing at which there is no data conforming to said first protocol after said
40	weighting.

1	16 (Original). A traffic shaping method, in a network connection system for
2	connecting a communication network and a plurality of user terminals, for
3	shaping a transmission rate for data conforming to a first protocol from said
4	communication network, said method comprising the steps of:
5	classifying data conforming to said first protocol received from said
6	communication network based on quality guaranteed classes set thereto;
7	correcting an overhead amount between a rate based on a second
8	protocol and a rate based on said first protocol to convert received rate
9	information on said second protocol to the rate based on said first protocol;
10	calculating a weighting coefficient based on said calculated rate and
11	the transmission rate for a preferential class among said classified classes
12	determined to be using information fed back from said user terminals such that
13	a minimally guaranteed rate is assured for a minimum rate guaranteed class
14	among said classified classes;
15	scheduling data conforming to said first protocol of said minimum rate
16	guaranteed class and of a weighting applied class among said classified classes
17	based on said calculated weighting coefficient; and

18	scheduling the data conforming to said first protocol of said
19	preferential class, the data conforming to said first protocol after said
20	weighting, and data conforming to said first protocol of a best-effort class
21	among said classified classes such that the data conforming to said first
22	protocol is delivered at a transmission rate equal to or lower than said
23	calculated rate, preferentially scheduling the data conforming to said first
24	protocol of said preferential class, preferentially scheduling the data
25	conforming to said first protocol after said weighting at a timing at which
26	there is no data conforming to said first protocol of said preferential class, and
27	delivering the data conforming to said first protocol of the best-effort class at a
28	timing at which there is no data conforming to said first protocol after said
29	weighting.

1	17 (Original). A traffic shaping method, in a network connection system for
2	connecting a communication network and a plurality of user terminals, for
3	shaping a transmission rate for data conforming to a first protocol from said
4	communication network, said method comprising the steps of:
5	classifying data conforming to said first protocol received from said
6	communication network based on quality guaranteed classes set thereto;
7	correcting an overhead amount between a rate based on a second
8	protocol and a rate based on said first protocol to convert received rate
9	information on said second protocol to the rate based on said first protocol;
10	when the difference between the transmission rate for a preferential
11	class among said classified classes determined using information fed back
12	from said user terminals and said calculated rate is lower than a minimally
13	guaranteed rate for a minimum rate guaranteed class among said classified
14	classes, setting an upper limit to the transmission rate for said preferential
15	class for shaping such that the minimally guaranteed rate can be assured for
16	said minimum rate guaranteed class;

17   calculating a weighting coefficient based on said calculated rate and

18 the transmission rate for the preferential class such that the minimally

19 guaranteed rate is assured for said minimum rate guaranteed class, when the

20 upper limit rate is not set for said preferential class, and calculating a

21 weighting coefficient based on said calculated rate and said upper limit rate set

22 for said preferential class such that the minimally guaranteed rate is assured

23 for said minimum rate guaranteed class, when the upper limit rate is set for

24 said preferential class;

25   scheduling data conforming to said first protocol of said minimum rate

26 guaranteed class and of a weighting applied class among said classified classes

27 based on said calculated weighting coefficient; and

28   scheduling the data conforming to said first protocol of said

29 preferential class, the data conforming to said first protocol after said

30 weighting, and data conforming to said first protocol of a best-effort class

31 among said classified classes such that the data conforming to said first

32 protocol is transmitted at a transmission rate equal to or lower than said

33 calculated rate, preferentially scheduling the data conforming to said first

34 protocol of said preferential class, preferentially scheduling the data

35 conforming to said first protocol after said weighting at a timing at which

36 there is no data conforming to said first protocol of said preferential class, and

37 delivering the data conforming to said first protocol of the best-effort class at a

38 timing at which there is no data conforming to said first protocol after said

39 weighting.

1 18 (Original). The traffic shaping method according to claim 12, wherein said

2 first communication network is an IP network, said data conforming to said

3 first protocol is an IP packet, said second network is an ATM network, and

4 said data conforming to said second protocol is an ATM cell.